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METALINGUISTIC TASKS FOR ADOLESCENT CHILDREN

BY

Mary D. Griffin
B.A., University of Central Florida, 1985

THESIS

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for the Master of Arts degree in Communicative
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College of Health
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INTRODUCTION

A multi-dimensional approach to assessment historically has utilized a schemata of language activities relevant to the three components of language; form, content and usage (Bloom and Lahey, 1978). In technical terms, these components are syntax, semantics and pragmatics, respectively.

A fourth major component of language is metalinguistics. Metalinguistics, according to Nicolosie, Harryman and Kreshnick (1983), is defined as "ability to think about language and to comment on it, as well as to produce and comprehend it" (p. 149). Van Kleeck (1984) defined metalinguistic awareness as "the ability to reflect consciously on the nature and properties of language." She reported that two- and three-year-old children have the ability to make metalinguistic judgements by only to the extent of satisfying their functional communication. She went on to say that most children of this young age do not pay attention to the linguistic form of a message, but instead, focus on the content of the utterance. Many children do not possess the ability to make linguistic judgements until the age of four or even up to the age of

eight, according to Hakes (1982) and Smith and Tager-Fulsberg (1982).

Though metalinguistics is a fourth component of language, it is dependent on the other components of syntax, semantics and pragmatics. It is through these other language aspects that metalinguistics can be measured. The metalinguistic component is unique from the others in that each of the other areas may be measured and observed independent of each other.

The literature encompassing studies or information pertaining to the metalinguistic capabilities of normal children is limited. The literature which is available will be discussed in terms of syntax, semantics/cognition, pragmatics and acquisition.

Syntax

In reference to the syntactic abilities exhibited by school-aged children, Chappell (1980) investigated mean length of utterance. He measured the use of five syntactical structures of 240 fourth- through seventh-grade students. He also utilized a reformulation task to assess their oral language performance. The results proved to be significant in the comparison of the various age groups. Thus, mean length of utterances were significantly different between the two groups. The younger children responded with

a decreased mean length of utterance, however, those same younger students were just as proficient as the older students in the use of noun clauses, different modifiers and verb phrases. The reformulation task can be used to measure metalinguistic skills, in that it requires the child to use and apply his/her language skills with the language components provided. The children needed to be able to understand the basic language skills so that syntactically and semantically correct sentences could be made.

Liles, Schulman and Bartlett (1977) observed that normal children, ranging in age from five to eight, significantly identified more syntactic errors than language-disordered children. Additionally, the normal children were 90% accurate in correcting the sentences they believed were agrammatical.

Kahmi and Koenig (1985) studied the metalinguistic abilities of language-disordered and normal children ranging in age from four years to seven years and two months. They found the normal children and the language-disordered children performed similarly in correcting sentence errors of syntactic and phonologic nature. Thus, there appeared to be no difference in repair strategies among the two groups. According to Clark (1978), making judgements about semantic relevance proved to be the easiest form with respect to the normal child.

Semantic/Cognitive

Markman (1976) analyzed cognitive requirements of certain tasks to assess nominal realism in first and second graders. He stated that "the word-referent differentiation task require the child to examine language objectively, to look at language rather than through it." The results indicate that the questions concerning word-referent differentiation were very difficult. Markman expressed his view that this difficulty may be due to their inability to meet the appropriate cognitive demands required of the task.

Pragmatics

Wilkinson (1982) investigated children from five to eight years old relative to metapragmatic knowledge of the request function. He utilized the three tasks of production, comprehension and reflection to obtain his data. The results yielded significant differences for the age of the child and the type of request. Older children used more indirect requests. Later, Wilkinson (1984) investigated five- through eight-year-old children relative to metalinguistic awareness of pragmatic rules. The rules of concern were indirect and direct request for information and action. These skills were assessed through administration of various production and judgment tasks. The results

revealed significant differences in the type of request as a function of the age of the child.

In summary, previous metalinguistic studies have focused on the young school-aged child, aged five- through eight-years of age. These studies have found, generally, that older children show more familiarity with the rules of language in syntax, cognition and pragmatics than the younger children.

Acquisition

Two studies, which have been performed in the past several years regarding the acquisition of various language abilities, are important to note. Lawson and Woolman (1976) reported the effectiveness of teaching formal stage tasks to the child still at the concrete level. He supports the rationale that the transition from concrete to formal operations may be achieved through teaching techniques. Morehead and Ingram (1973) stressed the fact that although language-disordered children acquire language abilities slower, these skills are not bizarre in nature. However, these skills are definitely different and acquired in a different time frame from the normal child.

This accumulation of data reveals the following: (a) facilitative teaching strategies are effective in the transition of concrete to formal operations; (b) the

language of the disordered child differs from that of the normal child but is not bizarre; (c) mean length of utterances are significantly different between the two groups; (d) there appears to be no difference in repair strategies; (e) semantic judgements are more easily made by the normal child as opposed to the language-disordered child.

Presently, there are no tests with the primary purpose of assessing metalinguistic abilities in the adolescent individual. However, there are several tests which include sections that could be used for this particular type of assessment. Additionally, the majority of these tests which can be partly used for the assessment of this unique form of language, only provide norms up to the age of eight or ten years old. The following discussion will briefly review those tests which are available for the assessment of adolescent language skills. In addition, the activities that were, in nature, metalinguistic were used as models for the Griffin and Hedrick tasks. As they are reviewed, the relativity to the Griffin and Hedrick tasks will be reviewed.

Current Assessment Materials for Adolescents

The Detroit Test of Learning Aptitude (Baker and Leland, 1967) tests verbal absurdities, verbal opposites,

social adjustment, orientation and likenesses and differences. The likeness and difference subtest, which is most relevant to this study, requires the child to tell how two words are alike as well as their differences. This is very similar to the Classification task used in this investigation. The Classification task required the child to group words in a manner that all the words in each group were alike in some way. The test can reliably assess children ranging in age from 3 to 19 years of age.

The Fullerton Language Test for Adolescents (Thorun, 1980) was devised to test subjects from the ages of 11 to 18 years old. This test is useful for testing eight different areas. The areas assessed which are relevant to this investigation are the areas of divergent production and grammatic competency. The divergent production subtest is most similar to the Categorical Naming portion of this study. This subtest requires the child to name as many things as possible in a given category in one minute. The grammatic competency section is very similar to the Conflict Sentence Difference which is administered in this study. The Conflict Sentence Difference task required the child to state whether a sentence sounded correct or incorrect when read to them. Their judgement was based on both syntactic and semantic accuracy. They were asked to make the sentence sound right if they felt it was incorrect.

Another test available for the assessment of language abilities in adolescents is the Screening Test of Adolescent Language (Prather, Breecher, Stafford and Wallace, 1980). This test is available for testing junior and senior high school-aged children. The vocabulary area tested in this tool is relevant to the Categorical Naming task in this study, which was described just prior to this section.

The next test to be presented is the Woodcock-Johnson Psycho-educational Battery (Woodcock and Johnson, 1978). This test assesses a variety of areas. Two areas of assessment in this test, visual and auditory learning and syntactic concepts, are similar to the Listening Game and Conflict Sentence Difference tasks, respectively, in this study. The Listening Game task requires the child to make a sequence identical to the clinicians, but with a barrier in between them. The child must guess initially, and is then provided with visual feedback concerning the accuracy of the sequence. The child keeps trying until he/she produces the correct sequence pattern. This assessment tool can be administered to subjects ranging from the age of three years old to adulthood.

The final test to be presented is The Clinical Evaluation of Language Functions (Semel & Wiig, 1980) which assesses selected language functions in the areas of phonology, syntax, memory, and word finding and retrieval. The areas of syntax and semantics are relevant to the

Conflict Sentence Difference task in this investigation. This task involves evaluation of both syntactic and semantic skills. This assessment tool can be used with children from kindergarten to age 12.

It is quite clear that the areas of semantics, syntax and pragmatics are critical in the role of metalinguistic measurements. It is also evident that a prerequisite for these language skills is appropriate cognitive functioning. Within the past several decades, Piaget (1950), Wallach and Butler (1984), Bloom and Lahey (1978), among others, have made reference to the importance of cognitive ability in the development of intellectual function. Cognition is also directly related to the acquisition and use of semantics, one of the main components of language. In recent years, the concepts of semantics and cognition have been considered to have an increasingly important relationship to one another. It used to be that these were two distinctly separate aspects of language. According to Robertson and Suci (1980), "The developmental order of language encoding of semantic relationships reflects the order of development of cognitive structures" (p. 71). Language is not learned and then expressed in relationships, but rather, the entity relationships are learned and that knowledge is later expressed as further language skills are acquired (Nelson, 1974; 1977).

The theoretical rationale for this investigation is best explained through Piaget's (1952) cognitive operational levels. The two operational levels which are relevant to this study are the concrete operational and the formal operational stages. According to Piaget, the concrete operational stage is characterized in children from the ages of 7 to 11 years old. These children will exhibit such skills as logical thought in terms of concrete and physical attributes and the ability to categorize and to do so in a hierarchical manner. The formal operational stage is characteristic of the child above the age of 11 years old. The child in formal operations will exhibit such skills as abstract thought, complex reasoning and mental hypothesis testing.

Van Kleeck (1984) supported this information with her personal development of cognitive stages. She defined the cognitive stages of centration, concrete and formal operations. Each of these stages include similar characteristics as Piaget's, respectively, but deviate in age by about one year.

Statement of the Problem

Utilizing the concrete and formal operational information discussed above, it appears to be true that there may be differences in the performance of the sixth-

and the tenth-graders due to the cognitive operational stages in which they are currently functioning. The sixth-graders, according to Piaget's data, should be functioning in the concrete stage, however, bordering the formal operational stage. The tenth-graders should definitely be functioning in the formal operational stage.

The purpose of this investigation was to discover whether or not normal tenth-grade children scored differently from the sixth-grade children on the tasks.

METHODOLOGY

Information was gathered through the administration of Metalinguistic Tasks for Adolescent Children (Griffin and Hedrick, 1986). The experiment was conducted in a school setting in one session. The test was administered to each subject by one of three speech pathologists. The test administrators were thoroughly trained in the use of the test and scoring procedures. Both verbal and nonverbal responses were required with respect to the specific task.

Subjects

Thirty subjects, 15 sixth-graders and 15 tenth-graders, were randomly selected from rural Polk County, Florida, elementary and high schools, respectively. All subjects who participated in the investigation exhibited normal speech, hearing and educational achievement, with no known visual or auditory impairments. Confirmation of normalcy was obtained through the respective classroom teachers' knowledge and access to school records. A visual and auditory screening was utilized to insure that all necessary modalities were intact. Two instruments were utilized in the screening

process. The visual screening was obtained via the visual and reading disturbance portion of the Minnesota Test for Differential Diagnosis of Aphasia (MTDDA) (Schuell, 1965). Auditory screening was completed at 25dBHL for the frequencies of 250HZ, 500HZ, 1000HZ, 2000HZ, 4000HZ, 6000HZ, and 8000HZ. The mean age of the sixth-grade subjects was 11.47 years and the tenth-grade mean age was 15.93 years of age. Eight female and seven males were tested in the sixth grade and seven female and eight males participated from the tenth grade sample.

Instrumentation and Scoring

The device used, Metalinguistic Tasks for Adolescent Children (Griffin and Hedrick, 1986), was composed of seven tasks. The tasks include Conflict Sentence Difference, Classification, Word Referents, The Listening Game, Sentence Reformulation, Categorical Naming, and Sentence Formulation. As a group, these tasks assessed semantic, syntactic, cognitive, and metalinguistic performance. The administration time was approximately 45 minutes. Subjects were required to give manual and graphic responses. A description of each task is provided below. A complete test protocol is listed in Appendix A.

Conflict Sentence Difference

The Conflict Sentence Difference task was administered to assess the subject's ability to judge the accuracy of a sentence relative to semantics and syntax. The sentence was read to the subject and the individual was instructed to identify whether the sentence sounded "right" or not. If it did not, they were told to change it to make it sound right. (e.g., The girl, who was crying, looked happy.) This task was scored by obtaining a raw score of the number of correct and incorrect. The sentences were broken down into semantic and syntactic errors and whether the error was within or outside of a clause. A raw score for each of these areas was also obtained.

Classification

The Classification task was administered to assess the subject's ability to classify objects according to their likenesses and differences. The subjects were given a list of words and asked to divide the list into two groups and the word in each respective group had to be alike in some way. They were then required to make a third list using some words from both groups and again, this list of words had to be alike in some way. (e.g., pie, motor, meadow, ball, pancake, mother, map, marshmallow, apple, mop, plate, moon, mayonnaise, balloon.) The scoring for this task was twofold. The subjects were give a "+" (correct) or a "0"

(incorrect) for the first list they made and a "+" or "0" for the second list. The number correct and incorrect for each group within the grade level was calculated.

Word Referents

The Word Referents task was administered to assess the subject's way of describing a word. The subject was instructed to listen to a word and say whether the word was "big" or "little" and why. (e.g., tree, telephone, bug, pizza.) The scoring for this task did not include correct or incorrect responses. Each response was categorized into the manner in which they described the word. All descriptions fell into the three basic categories of the number of letters in the word, the physical size of the object or the physical function of the object. A mean of each of these areas was calculated.

Sentence Reformulation

The Sentence Reformulation task was administered to assess the subject's ability to use separate word components to form a sentence. Each subject was given a scrambled sentence and was required to unscramble it to form a correct sentence using all of the parts. (e.g., which, he, boat, a, in, leaked, rowed, -- He rowed in a boat which leaked.) The score for this task was based on the amount of time needed

to complete the task. Each sentence was timed separately. The amount of time was calculated in minutes and seconds.

Categorical Naming

The Categorical Naming task was administered to assess the subject's ability to name components of a specific category. Each subject was given a category and asked to name as many things in that category that they could think of. They were given one minute for each category. (e.g., food, transportation.) The score for this task was obtained by counting the number of items named in the category in one minute's time. A separate score was obtained for each category.

Listening Game

The Listening Game was administered to assess the subject's ability to copy the examiner's sequence of colors hidden behind a barrier. The subject was given feedback through a system of black and white chips. The subject was told to try and make the same sequence of colors as the examiner's. (e.g., blue, blue, blue, yellow, yellow.) The scoring was based on two factors. The first factor was that of time. Each subject was timed, in minutes and seconds, for each sequence. The second factor involved the number of trials the subject required to produce the correct sequence.

Sentence Formulation

The Sentence Formulation task was administered to assess the subject's ability to formulate a sentence from a specified set of words. Each subject was given a list of words and was then required to make a sentence using all of the words but the specified words could be used only once. The subjects were instructed to add as many other words necessary for them to form a syntactically and semantically accurate sentence. (e.g., football, game, rainy, the, incredible, with, because, seniors.) The scoring for this task was threefold. Each sentence was given a "+" (correct) or "0" (incorrect) in the areas of semantics and syntax separately. Additionally, each sentence was individually timed in minutes and seconds.

Procedure

The subjects entered the testing room and immediately received a hearing screening (testing form in Appendix B). If the subject passed the hearing screening then he/she went on to receive the visual screening. If both screenings were passed, the administration of the tasks began. The implementation of the tasks required approximately 45 minutes for each subject. All three task administrators and their subjects were in one large classroom; however, barriers were used to divide the room into sections to

reduce interference. Reliability of each administrator was measured through the test-retest method. One week after the first administration, each examiner re-examined a portion of the students they had examined initially. A different test was given to reduce the effects of test learning (Appendix C).

RESULTS

The performance of sixth- and tenth-grade students was assessed via Metalinguistics Tasks for Adolescent Children (Griffin & Hedrick, 1986). The results will be reported in terms of each individual task.

Task 1: Conflict Sentence Difference

The Conflict Sentence Difference task was used to assess the subject's ability to identify syntactically and semantically correct and incorrect sentences. The errors occurred either within a clause or outside of a clause. Figure 1 shows the total number of correct responses for sixth- and tenth-graders on the semantic sentences and syntax sentences. Inspection of these numbers does not reveal a difference between the two groups of subjects. Table 1 provides a summary of the significance levels computed. The test was used to compare the abilities of the sixth- and tenth-graders for errors on the specific tasks, semantic errors inside and outside of clauses and syntactic errors inside and outside of clauses. A significant

difference was found in only one comparison, sixth- and tenth-graders on semantic errors within the clause.

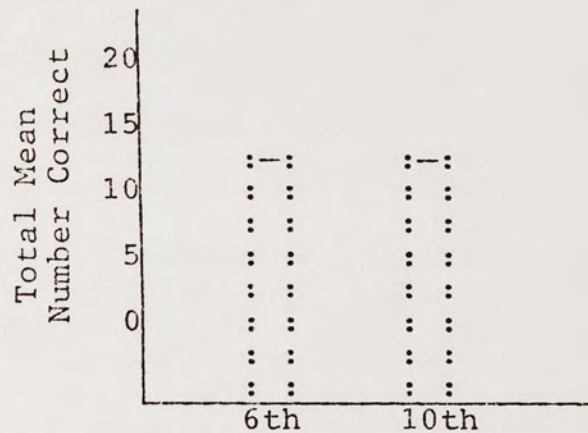


Figure 1. Mean number of correct responses for Conflict Sentence Difference task.

TABLE 1

P-VALUES FOR SIXTH VS. TENTH GRADE ON
CONFLICT SENTENCE DIFFERENCE TASK

	<u>WITHIN</u>	<u>WITHOUT</u>
SYNTAX	.59	.63
SEMANTIC	.005*	.79

* $p < .05$.

Task 2: Classification

The Classification task assessed the subject's ability to group different lists of words according to likenesses and differences. The first requirement was to make two lists from one list and the words in each list had to be

alike in some way ($\chi^2 = .542$). The second requirement was to make a third list using some words from each of the two lists they had made, and this third list had to contain words that were alike in some way ($\chi^2 = .666$). Figure 2 shows the correct responses for the sixth- and tenth-graders on each list of words they devised. This did not reveal any major significant differences in the raw data scores.

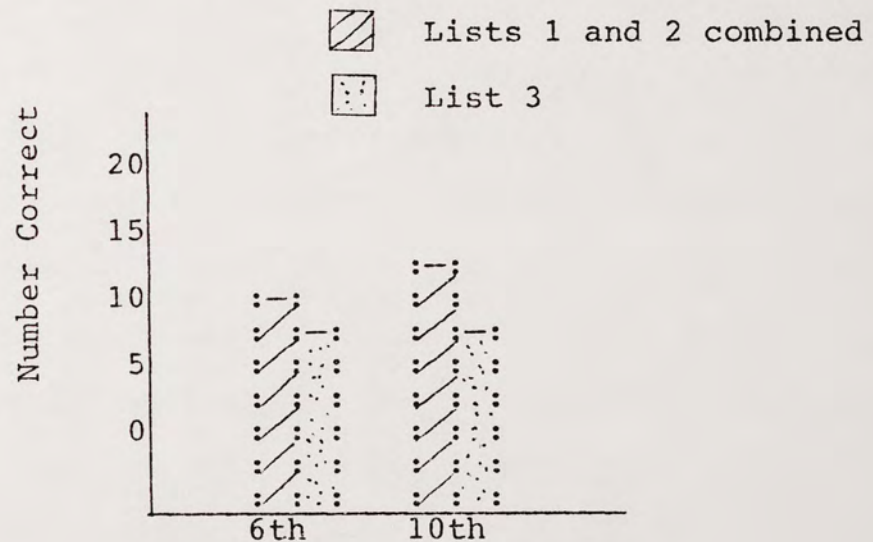


Figure 2. Number correct for sixth- and tenth-graders on the Classification task.

Chi Square test was used to compare the sixth-graders to the tenth-graders for each of these two requirements. No significant differences were found between the two grades in either classification.

Task 3: Word Referent

The Word Referent task was administered to assess the subject's strategy for describing a word. The subjects were asked to state whether a word was "big" or "little" and why after auditory stimulation. The three areas of comparison between the sixth- and tenth-graders were letters, size and function. Some of the subjects made their decision based on the number of letters ($p = .474$) in the word, while others based their description on the physical size ($p = .485$) or function ($p = .749$) of the object. Figure 3 reveals a trend in the sixth-graders to describe words in terms of size and function more so than the tenth-graders. The Proportion test was used to compare each group. No significant differences were found between the sixth-graders descriptions and the tenth-graders descriptions of the presented words.

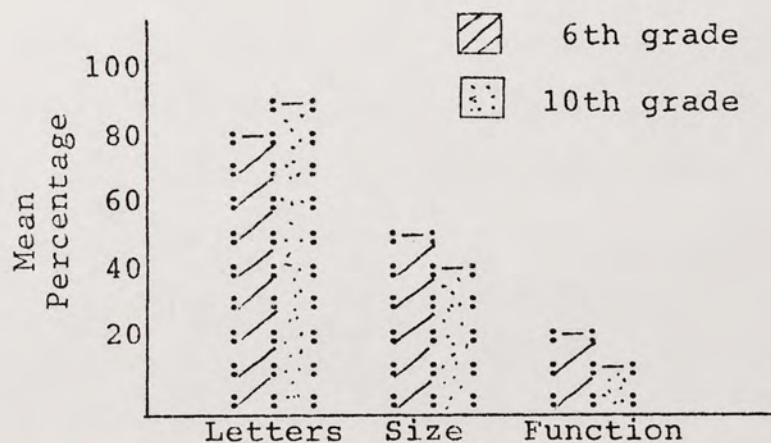


Figure 3. Mean percentage for sixth- and tenth-graders for description on Word Referent task.

Task 4: The Listening Game

The Listening game task was administered to assess the subject's ability to receive and utilize feedback in order to reach a goal. This task required the subject to organize colored chips in the same order as the person administering the task with a barrier between the two participants. The subject was given feedback via a predetermined code system with black and white chips. Figure 4 reveals a slight trend in the number of trials required to complete the Listening Game task. The sixth-graders required slightly higher number of trials to identify the correct sequence. Figure 5 reveals that the sixth-graders required a greater length of time to complete the tasks. Table 2 reveals the computed significant levels for the two sequences relevant to time and the number of trials required for completion of the task. Comparisons between the sixth- and tenth-graders' performance was based upon the number of trials it required and the amount of time it took to complete the task with the proper sequence of colors. The nonparametric Kruskal-Wallis test was used to compare the subjects' performance on the two Listening Game trials. No significant differences were observed between the sixth- and tenth-grade groups.

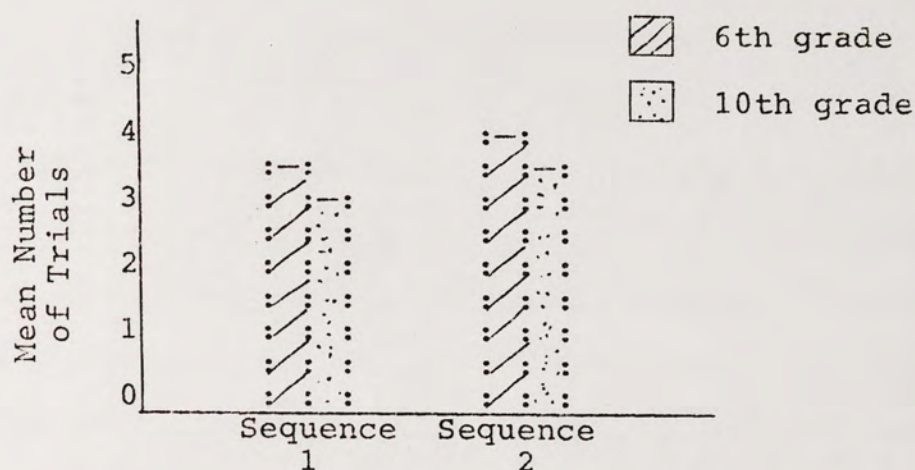


Figure 4: Mean number of trials for sixth- and tenth-graders for Listening Game task.

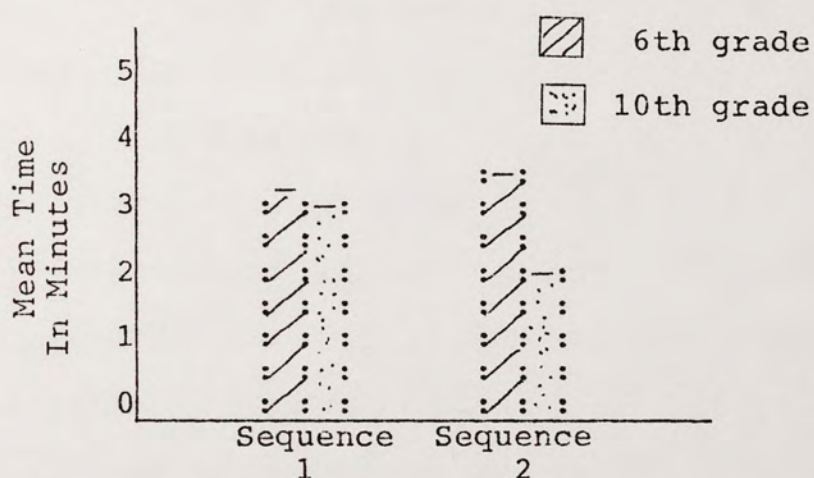


Figure 5: Mean time (minutes) for sixth- and tenth-graders to complete the Listening Game task.

TABLE 2

P-VALUES OF SIXTH-GRADERS VS. TENTH-GRADERS
ON THE LISTENONG GAME TASK

	<u>TIME</u>	<u>TRIALS</u>
SEQUENCE 1	.917	.901
SEQUENCE 2	.372	.406

* p .05.

Task 5: Sentence Reformulation

The Sentence Reformulation task assessed the subject's ability to integrate segments to form a whole. The subjects were required to unscramble a group of given words and produce a syntactically and semantically correct sentence. Performance for comparison was based upon the amount of time, for each of the five sentences, needed to complete the task. After one minute had elapsed each subject was given the option to receive a clue. Figure 6 reveals that the sixth-graders required a greater length of time to complete the tasks. The nonparametric Kruskal-Wallis statistical test was utilized for comparison between sixth- and tenth-graders. A significant difference ($F = .029$) was found on only one of the five tests presented. According to this test the sixth-graders required an increased length of time to form the third sentence (She was shoved into the hall by the force of the wind), which was passive in nature. Performance on the other four sentences did not prove to be significant.

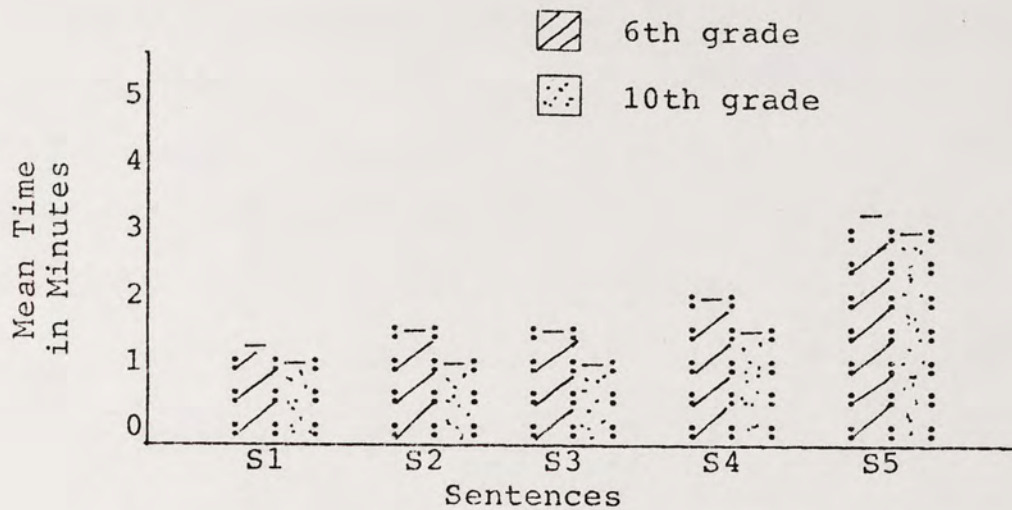


Figure 6. The mean time (minutes) for sixth- and tenth-graders to complete 5 sentences in the Sentence Reformulation task.

Task 6: Categorical Naming

The Categorical Naming task was administered to assess the subject's ability to name as many things in a given category within a given amount of time. Each subject was given one minute to name as many foods ($F = .135$) as possible and another minute to name as many forms of transportation ($F = .648$) as possible. Figure 7 implies that the category of food revealed a difference in the number of items named in that list. The tenth-graders appeared to name a higher number of items, but this was not statistically proven. For statistical analysis the Kruskal-Wallis nonparametric test was utilized. Comparisons were made between the sixth- and tenth-graders for each category.

No significance was found between the two groups in either of the two categories.

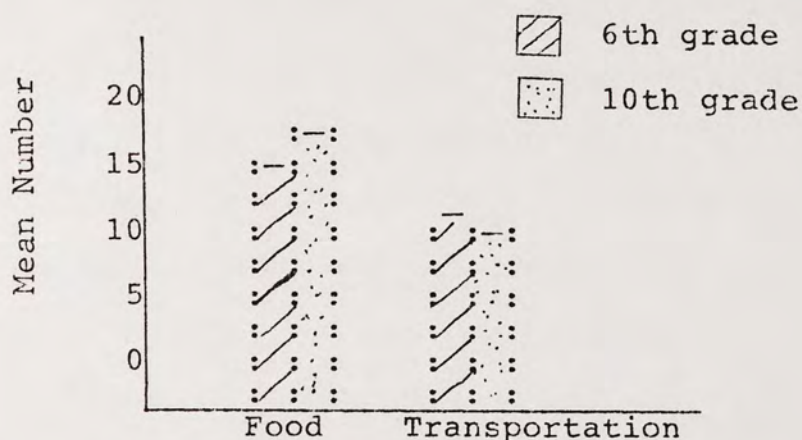


Figure 7. Mean number of words named by sixth- and tenth-graders in the Categorical Naming task.

Task 7: Sentence Formulation

The Sentence Formulation task was used to assess the subject's ability to formulate a sentence from a given set of words. Each subject was instructed to use all the given words only one time but they could add as many words as they needed to produce a syntactically and semantically correct sentence. Comparisons of performance were made based upon the syntax and semantics of each sentence as well as the time required to complete both of the sentences. Figure 8 reveals that the tenth-graders were able to produce a higher number of semantically and syntactically accurate sentences. Again, this trend was not proven statistically. Figure 9 reveals that the sixth-graders required a greater length of

time to complete the tasks. Table 3 summarizes the significant scores for the two sentences relevant to semantic and syntactic accuracy as well as amount of time required for completion of the task. The nonparametric t-test was used to compare the syntax and semantic portions of each sentence. No significant differences were observed between the sixth- and tenth-graders. The nonparametric Kruskal-Wallis test was used to compare the time measurements between the sixth- and tenth-graders. When compared, the length of time it took sixth- and tenth-graders to formulate a sentence proved to be significant. The sixth-grade group required an increased length of time to complete the task.

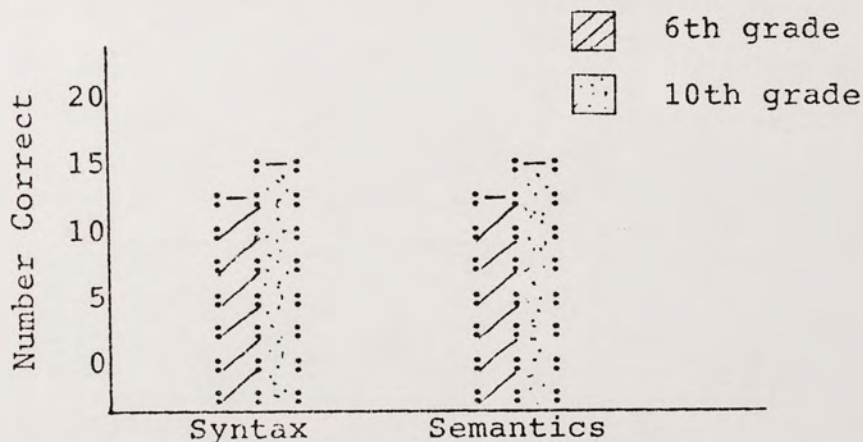


Figure 8. Mean number of correct for sixth- and tenth-graders for the Sentence Formulation task.

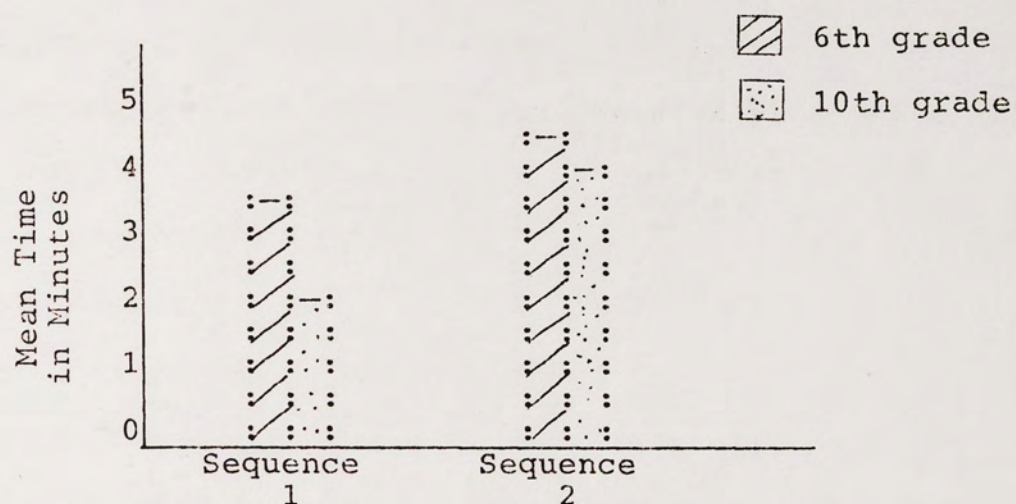


Figure 9. Mean time (minutes) for sixth- and tenth-graders to complete Sentence Formulation task.

TABLE 3

P-VALUE FOR COMPARISON OF SIXTH AND TENTH GRADERS ON THE SEMANTIC AND SYNTACTIC SENTENCE FORMULATION TASK.

	<u>SEMANTIC</u>	<u>SYNTAX</u>	<u>TIME</u>
SENTENCE 1	p = .153	p = .032	$\chi^2 = .013^*$
SENTENCE 2	p = .072	p = .146	$\chi^2 = .372$

* was significant @ .05 level

TABLE 4

TEST-RETEST RELIABILITY SCORES BASED ON HIGH,
MODERATE OR LOW CORRELATION.

TASK	HIGH	MODERATE	LOW
Conflict Sentence Difference	.7502		
Classification List 1 & List 2 List 3			NV* NV*
Word Referent Letters Size Function	.9975 .9974 1.0		
Listening Game Sequence 1 Trial Time Sequence 2 Trial Time	.7541	.4781	.1443 .3152
Sentence Reformulation Sentence 1 Sentence 2 Sentence 3 Sentence 4 Sentence 5	.7803	.4554 .5476 .5030 .5852	
Categorical Naming Category 1 Category 2	.8344		.0062
Sentence Formulation Sentence 1 Semantic Syntax Time Sentence 2 Semantic Syntax Time		.5478	NV* NV* .3879 NV* NY*

*Not Valid

Table 4 summarizes the test-retest reliability for each portion of the individual tasks. The table is divided into the three areas of high correlation, moderate correlation and low correlation. The test-retest reliability scores revealed that some tasks proved to be highly correlated while others did not correlate at all. The tasks that were highly correlated include the Conflict Sentence Difference task, the Word Referent task, the number of trials required in Sequence 1 of the Listening Game task, Sentence 1 of the Sentence Reformulation task, and the Second Category of the Categorical Naming task. Those areas which proved to be moderately correlated include the time required for Sequence 1 of the Listening Game task, Sentences 2, 3, 4 and 5 of the Sentence Reformulation task, and the time required for Sentence 2 in the Sentence Formulation task. The areas which obtained low correlation were the trials and time required for Sequence 2 of the Listening Game task, First Category in the Categorical Naming task, and the time required for Sentence One of the Sentence Formulation task. The Classification task and the Semantic and Syntax portions of the Sentence Formulation task did not receive reliability scores due to the low number of subjects.

DISCUSSION

The purpose of this research was to investigate whether normal order school-aged children, differing in age, scored differently on specific cognitive, syntactic, semantic, and metalinguistic tasks. The results indicated that these sixth- and tenth-grade students did not significantly differ, in general, in the metalinguistic skills assessed. Piaget's information suggested that the sixth-graders' performance at the concrete cognitive level would differ from the tenth-graders' performance at the formal cognitive level. The results of "no significance" are significant in themselves.

It is important to note that the sixth- and tenth-graders used similar strategy patterns for the various specific tasks. For example, it was hypothesized that the tenth graders might use the strategy of grouping foods into food groups when naming objects in the Categorizing task. This assumption, however, was not supported statistically. There were some individuals in each group which used this strategy, but there was not a group trend. Another assumption made before results were obtained was that the tenth-graders would use a different strategy than the sixth-graders in The Listening Game task. They did use a different strategy when initially placing the chips, but

used similar patterns when acting upon the provided feedback. A conclusive assumption could not be made. As well as exhibiting similarities, differences were also revealed. The areas of statistical significance were in 1) semantic conflicts within clauses, 2) formulating sentences and 3) reformulating sentences. The differences in formulation were found in the length of time required by each group to complete a task. The sixth-graders appeared to require an increased amount of time for these tasks. In the areas of syntax and semantics, only one significant difference was found in the two groups' performance, within clause semantic conflict (tenth graders were correct on 28 out of 30 opportunities to recognize semantic incongruous statements within the dependent clauses, sixth-graders only recognized 18 of the 30 opportunities). In general, however, it is evident that each group is capable of receiving and using feedback to form strategies and avenues for obtaining an end to a goal.

The Sentence Reformulation task revealed significance in the amount of time it took the sixth- and tenth-graders to complete the task, but only on one of the sentences. This task required the subjects to unscramble a sentence and to put it into correct form. The construction of the sentence was different from the others in that it was passive in nature. A passive sentence is one which does not follow the normal pattern of subject then verb then object.

This form requires a change in strategy, which may be a contributing factor to the significant results for this sentence. The constructions of the remaining sentences were declaratives and one in question form. According to Hubbell (1981), a declarative sentence is one in which a statement is being made. A sentence in question form is utilized for seeking information.

Another area of significance was found in the Sentence Formulation task. This task required the subjects to formulate a sentence with a given set of words and rules. This task revealed that the sixth-graders required more time for formulating a sentence than did the tenth-graders. The sentence which proved to be significant, forced the subject to use a conjoining conjunction (because). The other sentence required the use of a coordinating conjunction (but), which appears earlier in language development. According to Brown's stages of language development (1973), the coordinating conjunction "but" is present at Stage IV, whereas the conjoining conjunction "because" does not appear until Stage V. The sixth-graders took a significantly longer length of time to complete the task that contained the "because" conjunction.

The test-retest reliability scores are of great interest for future investigations. Those tasks which revealed a high correlation appeared to be well chosen tasks for these age levels. Those tasks which yielded a moderate

correlation need to be further investigated. It was not apparent from these scores whether or not these tasks were effective measurements for these age groups. The tasks of low correlation were important to note because they indicated that the particular items used or the tasks themselves may not be good measures for these particular age groups. The low correlations may have been evidence that the subjects learned and remembered the strategies of the tasks and were able to apply what they learned on the second form of the tasks. For example, the Listening Game task revealed a mid- to high correlation for Sequence 1 but low correlation for Sequence 2. It may be that by the fourth opportunity to participate in this activity, the subject may have learned a strategy to complete the task more quickly.

One possible explanation for the low correlation of the time for Sentence 1 of the Sentence Formulation task was that the conjunction used in the first form of the task was different from the conjunction required in the second form. The conjunction "because" was used in the first sentence on the first form and the second sentence on the second form. These reliability scores are crucial to the investigation of metalinguistic tasks.

This investigation was an introductory research project probing into the metalinguistic abilities of sixth- and tenth-grade students. Further research is needed before

valid and reliable norms can be applied to various age groups. This research should include the evaluation of populations with a larger difference in age, and with a larger sample size. Some of the tasks should be modified to assess varying degrees of difficulty and complexity. The data gathered in this research investigation are only a small portion of many resources needed for appropriate application of information, relative to the older school-aged child and metalinguistic skills.

APPENDIX A
TEST PROTOCOL

Task 1: Conflict Sentence Difference

1. The dog, which was in the house, was eating his dinner.
2. The horse, that found I, followed me home.
3. She at the pizza, that her mother made.
4. She was singing so softly, it hurt my ears.
5. The cat, that was grey, had five kittens.
6. The little boy, who was sleeping, ran around the house.
7. The man, who was tall, sit on the bench.
8. He eats his dinner, who was cold.
9. The man, who was sick, went to the hospital.
10. The girl, who was crying, looked happy.
11. The boy, who ran to class, was late.
12. The girl fixed the bike, which had a flat tire.
13. The chocolate bar, which was a Snickers, ate a girl.
14. She drink water, which was dirty.
15. He kicked the refrigerator, that was his favorite pet.
16. The family, which was big, went on a picnic.
17. He want some more soup, which was homemade.

Classification

marshmallow	mother
pie	pancake
ball	meadow
mop	map
moon	plate
balloon	motor
apple	mayonnaise

Word Referent

1. dictionary	9. cornucopia
2. bug	10. telephone
3. radio	11. pizza
4. encyclopedia	12. lake
5. house	13. umbrella
6. wall	14. earring
7. lipstick	15. cigarette
8. tree	

The Mind Game

1. R B G Y R
2. B B B Y Y

Sentence Reformulation

1. He rowed in a boat which leaked.
2. The movie was weird because all the actors wore masks.
3. She was shoved into the hall by the force of the wind.
4. The story was told by a man who had a beautiful deep voice.
5. Which is the best beach where people are allowed to fish?

Categorical Naming

1. Food
2. Transportation

Sentence Formulation

- | | |
|-------------|-----------|
| 1. football | 2. and |
| game | he |
| rainy | but |
| the | winter |
| incredible | rain |
| with | Orlando |
| because | is |
| seniors | movie |
| | King Kong |

Test Instructions

Conflict Sentence Difference

Tell me which of the following sentences sound okay. Some will sound okay and some of them will not. When you hear a sentence that does not sound right, give me a new one which makes it sound right.

Classification

Take these words and sort them into two lists and each list has to go together some way. For example: dress, sock, blue, chair, pants, box, dog, belt, bear, bathing suit . . . these can be divided into a list of "clothing" and "not clothing." Now, make a third list using words from both of your lists, that are alike in a different way. You could make a list of words that begin with the letter "b." You do not have to use all of the words. (If cannot do the third list, say: this time don't use the meaning of the words to sort.)

Word Referent

I am going to say some words and I want you to tell me if they are big or small. Then, I want you to tell me why.

The Listening Game

I am going to make a pattern on the board and you try to make the same one. When you are through, I will tell you which ones are right and then you try again.

Sentence Reformulation

I have some sentences that are all scrambled up. Try to unscramble them and put them in order. Some will be harder than others. If you need a hint or clue, please ask.

Categorical Naming

See how many words you can name in this category. You have one minute.

Sentence Formulation

I am going to give you a list of words and I want you to make up a sentence using each of those words only one time. You may add as many words as you need to.

APPENDIX B

Hearing Screening

Name: _____

Date: _____

School: _____

Age: _____

Evaluator: _____

Grade: _____

@ 25dB. H.L.

	:250HZ	:500HZ	:1000HZ	:2000HZ	:4000HZ	:8000HZ	:
	:	:	:	:	:	:	:
	:	:	:	:	:	:	:
Right:	:	:	:	:	:	:	:
-----:	:	:	:	:	:	:	:
Left :	:	:	:	:	:	:	:

Comments:

Pass _____

Fail _____

Signature _____

APPENDIX C

SECOND FORM PROTOCOL

Conflict Sentence Difference

1. The students, who were going to hear "Prince," were waiting in line.
2. The horse, that I found, followed me home.
3. She drank the milk shake that her cow made.
4. He turned down the volume on the TV because the commercial was so soft.
5. The zoo had a boa constrictor in a cage with two rattlesnakes.
6. The horse, who was grazing, falled down in the ravine.
7. The man with five children are buying my car.
8. He ate his dinner when it was cold.
9. The T.V. program which I pick was a comedy.
10. Three elephants with manes and long bushy tails lived in the jungle.
11. The man, who was eating a hamburger, ordered a Coke.
12. The boy blew up the balloon which had a big hole in it.
13. This wild and wonderful car, which eats grass, was a birthday present.
14. He run a fast race which he won.
15. She kicked the table because it was in her way.
16. His homeroom class, which was first thing in the morning, met at 5:00 p.m.
17. Her favorite ice cream was macadamia chocolate which was hard to find.

Classification

microwave	napkin
couch	dining room table
shoe	watch
piano	dishwasher
spoon	hotpad
alarm clock	toothbrush
stove	refrigerator
bed	chest of drawers
knife	chest of drawers
bathtub	T.V.

Word Referents

1. shoe	8. pastacchio
2. hippopotamus	9. train
3. car	10. snake
4. popcorn	11. helicopter
5. calculator	12. sun
6. moth	13. toothbrush
7. pool	14. ship

The Mind Game

1. R Y R BL R G
2. BR BR G R R

Sentence Reformulation

1. She ran down the hall which had no windows.
2. The boy was tired because he played football for two hours.
3. He was knocked in the head by the trunk of a tree.
4. The dinner was served by a nice polite waitress.
5. Where is the movie theatre, which serves hot dogs as well as candy and popcorn.

Categorical Naming

1. Clothing
2. Occupations

Sentence Formulation

- | | |
|----------|---------|
| 1. has | 2. is |
| house | because |
| dirty | clown |
| which | towel |
| tiny | circus |
| very | beach |
| and | |
| enormous | |

APPENDIX D

Permission Form

Dear Parent or Guardian,

As a graduate student in Speech Pathology at the University of Central Florida, I am in the process of gathering data for a research project. The purpose of the project is to compare the abilities of sixth-graders to tenth-graders in various language activities. The students will be assigned numbers in place of their name for identification to maintain strict confidentiality. I would appreciate your permission to include your child in my study. Thank you for your cooperation.

I give my permission for _____
(son/daughter) to participate in the language activities to be administered by a graduate student in Speech Pathology.

I do not want my child to participate in the study_____.

Parent/Guardian Signature

Date

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